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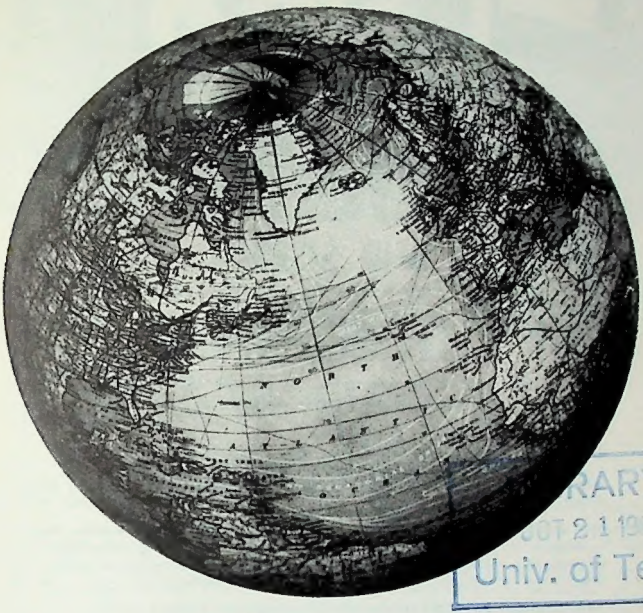

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OF THE EARTH'S ORIGIN

DUDLEY JOSEPH WHITNEY

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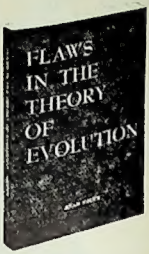

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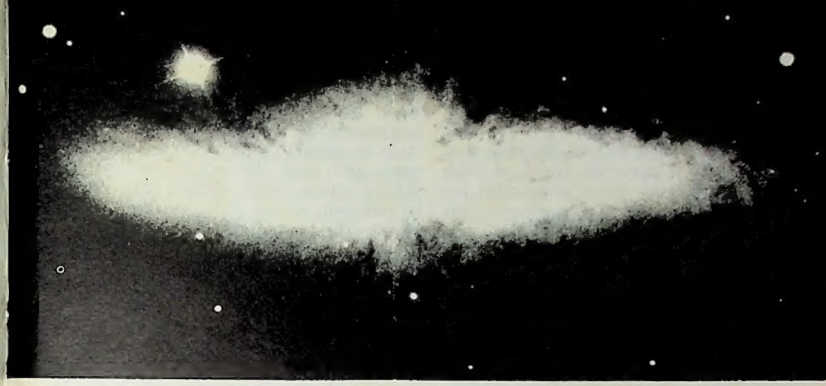

COMMENTS ON THE EVOLUTIONARY THEORIES OF THE EARTH'S ORIGIN

DUDLEY JOSEPH WHITNEY

It is the purpose of this study to point out certain facts which suggest that the theories that have been proposed for the origin of the earth by evolutionary processes are untenable and in consequence all conceptions as to the geologic history of the earth based upon them must be insecure. The importance of this conclusion is self evident to the students of the problem.

Every thinking person will doubtless agree that the kind of history which the earth has had is dependent upon the way it came into being. If it came into being through purely evolutionary processes, it may be assumed that the processes which operated after its origin and brought it into its present condition were doubtless purely evolutionary also. On the other hand, if the earth came into being by the special exercise of divine power, its history would presumably be far different from that which has been worked out on the postulate that the theory of evolution is correct.

If, too, the earth came into being and has operated by purely evolutionary processes, as is assumed by scientists and has been assumed by them for more than a century, it would seem as though the nature of these processes which brought it into being should be known by now. If they are not known, seeing what great advancement has been made in science in the last century, it would certainly seem reasonable to assume that the earth did not start by evolution. In mathematics, when there is no direct way to solve certain kinds of problems, they may be solved by the elimination of all solutions but one. So in the question of evolution versus creation, if every imaginable evolutionary process for the origin of the earth (or for life, or for the eye, or the human species, or anything else) is studied and found wanting, creation as its method of origin is inferentially indi-

cated, at least until a theory which looks more plausible can be submitted.

On this point it can be said that every theory that the mind of man has been able to devise to account for the origin of the earth, except that of creation, has been weighed in the balances and found wanting. When the theory of geologic history was worked out, which has been standard belief by geologists for more than a century, the astronomers and geologists thought that they knew how the earth evolved into being. But they had some very false beliefs regarding the original nature of the earth, and their theory of geologic history was based in large part upon those beliefs. For example, the early geologists believed as do some present day geologists that the earth began in a molten state and that the water of the present ocean covered the surface of the globe with a thick blanket of hot, acid steam. Vivid word pictures have been drawn of water condensing from such an atmosphere and falling with hissing sounds upon the hot surface of a newly hardened crust only to be turned immediately into steam again. If the earth formed under such conditions, there would be an extensive and definitely saline ocean from the beginning, and a considerable atmosphere.

On the other hand, other geologists have theorized that the earth was never molten, but began much smaller than at present, that it grew by accretion, and that the ocean and atmosphere came from within the earth by volcanic action. Clearly the history which the earth would have after developing in one of these ways would be far different from what it would have been after originating in the other. Moreover, the nature of the early earth would obviously depend upon the kind of process by which it came into being. Nevertheless, the same kind of geologic history, at least its greater part, is still assumed by those who believe that it probably started in a molten state as by those who assume that it started as a small, cold solid mass.[1] Such a conclusion is bound to be erroneous. In considering the problem of the geologic history of the earth it is well to keep in mind that the early geologists thought that they knew how the earth started and what it was like in the beginning, but that they were wrong on both counts.

The Nebular Hypothesis

The theory of origin which was standard in the formative period of modern geology was the Nebular Hypothesis and this theory was believed for more than a century. While it has been rejected by every

[1] On the difference it would make to the earth whether it started small and cold or molten hot and full size, what the authors of a prominent textbook in geology (Schubert and Dunbar, pp. 1 and 2) say may prove instructive.

"On the physical side, the Earth has, we believe, cooled from a molten to a solid state. As it solidified, the water vapor of its heavy primal atmosphere condensed into rain and fell upon the hot crust, rose as steam over and over again, and finally came to lie in the depressions and to fill the ocean basins. Geologic time, properly speaking, began when the Earth had a cold exterior, and when rain and wind commenced their ages-long task of wearing down the high places and transporting the debris into the low ones."

"According to the hypothesis we have sketched [The Gaseous-Tidal Hypothesis of Sir James Jeans, astronomer, and Harold Jeffreys, geophysisist], the Earth was first gaseous and self-luminous, gradually cooling through a molten stage to solidity. It was thus full-grown at birth and molten until just before the beginning of geologic time."

In the early stages, when the globe was very hot "the molten Earth was surrounded by a vast atmosphere largely of free oxygen, probably a thousand miles deep, and exerting a pressure of 15 to 20 tons per square inch at the surface." (Cont. on next page.)

intelligent astronomer or geologist, as have been substitute theories which have been suggested in its place, the Nebular Hypothesis is so important in considering theories about the history of the earth that some detailed attention to this can well be given. Although creationists assailed this hypothesis as being unworthy of acceptance long before the scientists themselves awoke to the seriousness of its faults,[2] it was not until the closing years of the last century that scientists of standing decided to reject it and managed to get a hearing from other scientists.

The theory is that the sun started as a large cloud of "fire-mist" which rotated so rapidly that it had assumed a disk-like rather than a globular form. As it contracted, rings of matter separated from the central mass and in time these rings became condensed into planets. The central mass was held to have contracted to form the sun. The planets as well as the sun were believed to have been fiery hot in the beginning.

This Nebular Hypothesis was accepted as sound science for more than a century as the result of the calculations of the French mathematician Laplace, and remained standard belief until detailed investigations toward the close of the last century showed that it had so many faults that its rejection became necessary. The story goes that Laplace explained the hypothesis to Napoleon who listened with interest and then asked what place God had in it, and Laplace is said to have replied, "Sire, in this system there is no need of God." His reply was correct. In the Nebular Hypothesis the actions of matter were held to be purely automatic and the only place for a deity would be at some hypothetical starting point untold millions of years ago. In accord with this theory the universe would have to be considered as a self-winding clock which would operate until it was worn out. If that position is taken, it would seem more logical to consider the universe as an eternally existing self-winding clock rather than a product of divine creation.

Relation of the Nebular Hypothesis to Geologic History

It seems evident that if the sun and the rest of the solar system began in a purely natural manner, rather than by the direct ordering of matter by the Creator, the history of the earth after its origin would doubtless be purely automatic also. It was natural

"As soon as the temperature had fallen below 374°C. the vapors could condense, and rain fell in torrents beyond human conception, quickly lightening the atmosphere, covering the Earth with its ocean waters and initiating the geologic processes of erosion." (pp. 60, 61.)

On the other hand if the earth started by the accumulation of planetesimals it would start small and cold. "If the Earth was formed by slow accretion of solid particles, it could have no atmosphere until it attained a diameter of more than 2000 miles. With greater mass, it should have retained gases gathered from its path and those generated by volcanoes within. At first its gaseous envelope must have been thin and rare, increasing gradually to its present condition. . . ." (p. 57.)

The book goes on to say that by this way of starting the earth nearly 2000 miles of the earth's crust would have suffered weathering, and sodium far in excess of the amount in the ocean would have been leached from the rocks, and this, among other things tends to discredit the hypothesis that the earth started in this way. Nevertheless many geologists still favor the theory that the earth started small and cold and attained its ocean and atmosphere from within the earth. Clearly the kind of history the earth would have after starting hot and with a large ocean and atmosphere at the beginning would be different from what it would have if it started small and cold and with little or no ocean and atmosphere, yet holders of each theory accepted the same system of geologic ages and the same methods of estimating geologic time.

[2] Patterson, Robert: *The Errors of Evolution*, Bible Study Library, 1884.

on this basis to conclude that everything came to be as it is by the operation of evolution, and scholars did come to this conclusion. This conclusion in favor of universal evolution was aided by two situations—by the supposedly harmonious (though mistaken) way that the origin of the earth by the Nebular Hypothesis fitted into evolutionary geology, and further by the assumed harmony of the Nebular Hypothesis with the Genesis account of creation, which induced many theologians to accept it as sound science.

According to this hypothesis the earth was believed to have started as a fiery globe which cooled until geologic processes much like those which operate at the present time could begin. Mountains supposedly would be worn away by weathering and the sediments deposited in valleys or shallow seas. Then new mountains would be uplifted as the earth lost internal heat and shrunk in cooling. Geologic processes like those which operate now were presumed to have continued for millions upon millions of years, through geologic epoch, period and era. Thus the current theory of geologic history in its leading aspects was based upon the belief that this hypothesis was sound.

Thus James D. Dana, one of the well known American geologists of the last century, wrote: "For these grander phenomena in the earth's history the only explanation is found in the fact that the Earth has always been, and still is, a cooling globe.

"That the Earth was once liquid is now generally admitted. If so, the cooling is a fact, and contraction, the attendant of cooling, is a necessary consequence."[3] This view was standard among early geologists and still exercises a great influence among persons who are not familiar with recent developments.

Note particularly in the quotation the statement that the only explanation for "these grander phenomena in Earth's history" comes through the assumed cooling and shrinking of the globe. This illustrates the relation between the assumed origin and nature of the early globe and its later history. Yet the earth is no longer generally believed to have been molten at the start nor is it generally believed to be cooling and shrinking. T. C. Chamberlain, who with his colleague F. R. Moulton, overthrew the Nebular Hypothesis by showing some of its many faults and by providing a temporarily satisfactory substitute for it in the Planetesimal Hypothesis, proved to his own satisfaction and to that of most other geologists that the earth did not begin in a molten state. There is also good reason to believe that the interior of the earth is not cooling and shrinking, but rather may be gaining in heat through radioactivity,[4] which leaves the problem of the uplift of mountains completely unsolved. Therefore, the only evolutionary explanations for "these grander phenomena in earth's history" have been cancelled by the advance of knowledge.

Genesis and Geology

Some of the faults of the Nebular Hypothesis which caused it to be rejected will be mentioned shortly. But first the way that the hypothesis and the kind of geologic history based upon it were supposed to correspond to the Genesis account of creation may well be pointed out. The assumed harmony between Genesis and old line geology had much to do with the acceptance of evolutionary geology by theologians and geologists alike.

The first chapter of Genesis, after

[3] Dana, James D.: *New Textbook of Geology*, 1877, p. 116.

[4] Holmes, Arthur: *The Age of the Earth*, 1927, p. 48.

stating the fact of the initial creation, tells of the ordering of the earth in six periods of time which are termed *days*, although certain scholars who favor evolutionary geology insist that they should be considered as periods of indefinite length.[5] The initial condition of the earth is described in Genesis as having been unordered, dark and seemingly covered with water. The first step in its development is given as the coming of light; the second the organization of the firmament, or atmosphere; the third the separation of land areas from seas and the creation of plants; the fourth the creation, or at least the appearance, of the heavenly bodies; the fifth the creation of water creatures and birds; and the sixth the creation of beasts and creeping things and, last of all, Man. This course of events was once said to be in a general way what evolutionary geology set forth; so the theologians thought that of course the geologists were correct, that Moses had recorded in the first chapter of Genesis what geologists three thousand years later believed to be fact.

The initial darkness over the face of the deep was assumed to have been due to a deep dense atmosphere of water vapor and other substances over the face of the earth. This would be the result of the supposedly high temperature of the surface of the earth, which would be so high that the water now in the ocean would be in the form of vapor, and in dense clouds which would prevent the light of the sun from reaching the earth. Thus the earth would be "without form and void; and darkness would be over the face of the deep." On this basis, it was therefore thought that the initial condition of the earth according to the Nebular Hypothesis was as Genesis described.

The events of the six periods of Creation Week would then supposedly correspond in a general way at least to the findings of geologic history. Day One according to Genesis brought light, and according to evolutionary geology the loss of heat from the atmosphere would cause water to be precipitated upon the earth, thinning the covering of clouds enough to allow the light to penetrate to the face of the earth, though in diffused form, as in a cloudy day at present. Thus day and night could start on the earth.

Further cooling and precipitation of parts of the dense cloudy covering would bring the atmosphere into a condition approaching its present condition, though with certain important differences in composition, and this would be the making of the firmament, which was the work of Day Two in Genesis.

The surface of the earth would then be covered with water, but the elevation of land areas would bring the continents into existence. This would make possible the coming of vegetation, a necessary prelude to the appearance of animals, which was the work of Day Three. Here, however, a serious uncertainty developed in the effort to fit Genesis to geology. The fossil record, as based on the kind of history developed after belief in the Nebular Hypothesis became common, suggests that the seas teemed with shell fish and numerous other kinds of marine creatures long before there was any land plants at all, except bacteria or other lowly organisms. The harmonizers of Genesis and geology therefore were compelled either to content themselves with the knowledge that plants by necessity had to come before animals, or to decide that the luxurient vegetation of the Carboniferous period, as

[5] Price, George McCready, "What Christians Believe About Creation," *Bulletin of Deluge Geology*, Vol. 2, 1942, pp. 66-84.

geology had it, was an important feature of creation of Day Three of Genesis.

The Second Half of Creation Week

The Fourth Day of creation according to Genesis is puzzling in several ways. It says nothing about any advance in life forms on the earth but records the making of the two great lights of heaven, the sun and moon. Theologians often believe that these only *appeared* first on that day, that their light first shown clearly, rather than in diffused form, on the earth at that time. On this basis the harmonizers of Genesis and evolutionary geology thought that the great quantities of carbon dioxide removed from the air in the great coal beds of the Carboniferous period so cleared the atmosphere that the light of sun, moon and stars could finally reach directly, rather than in diffused form, the surface of the earth. This hypothesis, whether valid or not, at least appeared to sustain the harmony between Genesis and geology up to the end of the fourth day of Creation Week.

The simple fact is that no matter where a person decides to place the appearance of birds and animals in the scheme of geologic ages, the fifth and sixth days will not correspond with the Genesis account of creation except in a most general way. According to Genesis, birds and sea animals followed plants in the order of life forms on earth, and beasts and "creeping things" were made on the sixth day, after birds. But in the scheme of geologic ages, "creeping things" and even animals which the ancient Hebrews would call beasts preceded the appearance of birds. However, since the Scriptures recorded the coming of most of what we call the higher animals after the lower, with man the latest of the great kinds of creatures to appear, there seemed to be a general harmony between Genesis and the theory of geologic history which was built upon the belief that the earth started through the Nebular Hypothesis.

Once the belief in the system of geologic ages was firmly established among scientists and theologians, such serious inconsistencies between Genesis and the geologic ages became apparent that geology was used to assail, not to sustain, the Genesis account of creation. Early geologists, like Dana and Sir J. W. Dawson emphasized the supposed correspondence between Genesis and geology, but only a rare individual will do so now and theologians and geologists alike admit that the correspondence does not exist.

Where the Nebular Hypothesis Failed

If geologists still believed in the Nebular Hypothesis, there would be reason to show how false it is, but since they now acknowledge their helplessness in devising any explanation for the origin of the solar system that has any real merit, there is no occasion to go into this matter in detail.[6] However, a few leading fea-

[6] Statements indicating the inability of scientists to decide how the solar system came into being are so frequent the last few years that citations of them should be unnecessary. Possibly the most thorough discussion of the subject is in H. N. Russell's *The Origin of the Solar System*. However, one or two quotations may be in order. These are taken from the recently published Harvard Books on Astronomy:

"All of the hypotheses so far presented have failed, when physical theory has been properly applied." (p. 231) "There appear to be damning arguments against every theory so far proposed for the origin of the planets." Whipple, F. G., *Earth, Moon and Planets*, p. 238.

"We might say that comets represent the debris left over when the solar system was formed. But that is no answer for we do not know how the solar system was formed." Watson, F. G., *Between the Planets*, p. 85.

tures of the case may well be mentioned.

In the first place, there are no nebulae in the heavens as far as is known like the nebula that was postulated in the Nebular Hypothesis. Those which resemble them in appearance are now known by better telescopes and photography to be galaxies of distant stars and not masses of star dust which would condense into individual stars. Although there are shapeless clouds of star dust in parts of the heavens, these are not rotating, nor disk-shaped, nor contracting to form stars, for all that can be seen.

The essential feature of a nebula which would contract into a solar system would have to be such rapid rotation that it would be disk-shaped, and it is practically inconceivable that gaseous matter could come together in the heavens in such form. A disk-like, rapidly rotating nebula composed of solid particles like those which compose the rings of Saturn might conceivably exist, though only the miracle of creation could bring it into being as far as is known. However, this kind of a nebula is not what was assumed, nor would it possibly contract to form a solar system.

There are stars which are gigantic masses of very rarefied gases in the heavens, but they are globular, not disk-shaped, and while they may in time contract into stars resembling our sun, it is most unlikely that they can contract into solar systems.

However, when we go back still farther in hypothetical time to the origin of either nebula or star, creation of some sort is ultimately necessary. Stars which send forth light are intensely hot, but space distant from stars is intensely cold, so that matter existing there would have a temperature little, if any, above absolute zero. Cold matter will not accumulate, naturally, in cold space to form a hot star. Therefore, regardless how we may theorize, a beginning creation is absolutely demanded.

The one fault above all others which convinced scientists as to the inadequacy of the Nebular Hypothesis is the relative amounts of angular momentum[7] in the sun and other parts of the system. If a nebula rotated so rapidly that it assumed the form of a disk in order that the planets could separate from a central mass, this central mass would have to rotate rapidly, with much angular momentum. Instead, the sun rotates lazily, while the planets have a far greater amount of angular momentum in proportion to their masses, which keeps them traveling in circular orbits around the sun instead of falling into it.

There are other obstacles to belief in the Nebular Hypothesis, only one more of which needs be mentioned. In certain of the outer planets there are satellites which rotate in reverse to the normal direction, the normal direction being from west to east, in the direction the moon travels around the earth. Seemingly this could not occur if the solar system took form through the Nebular Hypothesis, and it would be hard to explain under any alternative theory of evolutionary

[7] "The angular momentum of a planet moving in a circular orbit at a given distance from the sun is the product of the mass, distance and speed." (Expressed informally, it can be said to be the force which keeps it moving around the sun instead of falling into it. The angular momentum of the sun is the force which keeps it rotating.)

"Jupiter, with its great mass, carries about six-tenths of the entire angular momentum of the whole system. The four giant planets contribute about ninety-eight per cent, and the terrestrial planets a fifth of a per cent. The sun, with a thousand times the mass of Jupiter, rotates so slowly that its angular momentum is only two per cent of the whole." Whipple, Fred L., *The Earth, Moon and Planets*, 1941, p. 233.

origin which had merit enough to make it obtain favor.

The Encounter Theory and Its Deficiency

Although creation as an explanation of the origin of the earth and the rest of the solar system was rejected because of the assumed truth of the Nebular Hypothesis and the supposed merits of the system of geologic ages, it only needed a detailed examination of the data to show that the Nebular Hypothesis was wrong. This was given toward the close of the last century by T. C. Chamberlain and F. R. Moulton who showed that there were so many faults in the Hypothesis that it had to be discarded.

In its place they proposed the theory that a star passing near the sun long ago caused matter to leave the sun and become the earth and other planets. This is now called the "Encounter Theory." It has had several forms, the first of which, devised by Chamberlain and Moulton, was called the Planetesimal Hypothesis. According to this hypothesis the earth was believed to have started, not as a molten hot mass, but as a solid globe much smaller than at present and to have grown by the fall of "planetesimals," or as we might say, meteors and meteorites. The ocean and atmosphere were believed to have come mainly from within the earth through volcanic activity, rather than to have existed at the surface from the beginning.

While the first form of the Planetesimal Hypothesis had to be modified all subsequent modifications also proved to be too much at fault to merit acceptance. The Tidal Theory, developed in Great Britain as another form of the Encounter Theory, also had its brief day of favor before it too was rejected. It is now generally admitted that no naturalistic method by which the solar system could take form is acceptable though belief in some undiscovered and undefined form of Encounter Theory is generally expressed.

Scholars still tend to favor in a general way the Encounter Theory as a means of accounting for the origin of the earth and the rest of the solar system, but every attempt to decide how it could operate fails. In addition to many minor difficulties, two outstanding difficulties exist. One difficulty is that if a great mass (or several smaller masses) shot out from the sun, this matter, instead of remaining together until it could condense into planets or their nuclei, would, on account of its extremely high temperature, explode and spread out into space. This is one of the most damaging objections ever brought against any and all forms of the Encounter Theory. This feature also leaves unsolved and apparently beyond solution all explanations based upon the dogma of evolution for the presence on the earth of the gaseous elements, oxygen, hydrogen, nitrogen, and so on, which make up the ocean and atmosphere of the earth.

The second outstanding objection to the Encounter Theory to which special attention should be directed is the difficulty which matter, having been thrown off from the sun, would have in attaining circular orbits like those of the planets. This matter, losing its momentum as it proceeded away from the sun, would tend to be pulled back into the sun. Or, if for some reason it passed to one side of the sun without falling into it, the orbit would be extremely elliptical, like that of many comets. One part of the path would be close to the sun and the distant part far from the sun, whereas the paths of the planets, though slightly flattened, are nearly circular.

This difficulty has received some attention, with a lack of success which

is quite apparent. Speaking of the earth, the authors of a current textbook in geology write: "Its original course must therefore have been highly elliptical, and the present nearly circular orbits of the planets require an explanation. For this Jeans and Jeffreys invoke the interference of the gases that leaked away from the filament—(the explanation goes with the Tidal Theory by the two men mentioned)—formed a vast atmosphere prevading the whole system, and rotated as a unit with the sun. For a time this gaseous medium may have been relatively dense. . . ."[8] There is no need to give the complete explanation. The resistence of the gas is presumed to have rounded out the orbits of the planets.

The explanation, such as it is, provides a striking example of the unscientific reasoning done by scientists of the highest rank in their efforts to explain, naturally, what can be explained only on the basis of the divine ordering of the universe by the Creator.

For one thing, a filament drawn from the sun, as the Tidal Theory has it, would, by the high temperature of the gases composing it, explode and be scattered through solar space instead of having gases leak from it. Moreover, there would be no prospect of it rotating "as a unit with the sun" except perhaps to a very small extent. Again, instead of such gas being relatively dense, it would be extremely rarefied, particularly if it extended out as far as the orbits of Uranus, Neptune and Pluto. The latter is more than 19 times the distance of the earth from the sun, and the earth is 93 million miles from that body. By the time that this hypothetical gaseous atmosphere rounded out the orbit of Pluto, to say nothing of Jupiter, Saturn, Uranus and Neptune, it would accomplish a most astounding miracle. Finally, if there was such a gaseous medium to round out the orbits of the planets, Pluto certainly would have picked up a great amount of the gas, whereas it holds no atmosphere at all and has no frosty covering. Astronomers are therefore helpless in explaining how the planets could attain their nearly circular orbits by any form of the Encounter Theory.

The general situation can perhaps best be understood by viewing the Nebular Hypothesis and the Encounter Theory together. The view that the system began by the contraction of a rotating Nebula would explain the orbits of the planets fairly well, but not the orbits of some of their satellites, and it has too many faults in other ways to allow it to be accepted. The only known alternative to this, outside of *creation* is some form of the Encounter Theory, but every form of this fails completely when studied in detail. One of the serious failures here is in finding a way that the planets could attain their nearly circular orbits. Minor difficulties with both Nebular Hypothesis and Encounter Theory need not be mentioned. It is enough to say that not only are astronomers and geologists at a loss to work out any satisfactory evolutionary explanation for the origin of the earth and the rest of the solar system, but they also admit this deficiency.

Comparative Composition of the Sun and Earth

Aside from the failings of the Nebular Hypothesis and all forms of the Encounter Theory that have yet been suggested from a mechanical or dynamic standpoint, there is another fundamental weakness in all efforts to account for the origin of the earth by evolution. This concerns the

[8] Schuchert, Charles, and Dunbar, Carl O., *A Textbook of Geology*, Part 2, *Historical Geology*, 933, p. 60.

composition of the earth and of the sun.

It is generally stated that the earth and the other planets are the offspring of the sun, that is, that they were formed from material which came (in some unknown way) from the sun. Formerly no special problem seemed to exist in this connection, for the elements composing the earth seemed to be found in the sun, also in meteorites, and presumably the proportion of the different elements in the sun was of a kind which would reasonably give the earth, Venus, Mars, Jupiter and the other planets the kind of composition they have.

Recently, however, a serious difficulty in this connection has developed which seems to be the outgrowth more of the problem of the manufacture of heat in the sun than of the actual observation of that body.

Lord Kelvin pointed out many years ago that a serious problem existed in trying to figure how the sun could provide heat and light to keep the solar system going for more than a few million years, and the kind of geologic history generally believed cannot be reasonably crowded into that period of time. A solution to this problem seemingly was suggested by the discovery of radioactivity and the apparent relationship between energy and matter. Physicists thought for a while that heat could be produced for untold millions of years in the sun by the destruction of the atom, only to find that apparently they were wrong. Then by degrees they decided that the transformation of hydrogen into helium by several intermediate steps could keep the sun producing heat much as at present for billions of years. This is their current explanation for the assumed very great age of both sun and earth.

However, to make this hypothesis reasonable for the production of heat in the sun for billions of years, it was found necessary to assume a very high hydrogen and helium content of the sun both now and in the past. If, therefore, the sun had anything like such composition when the solar system formed, the earth and the rest of the planets would almost certainly contain immense quantities of helium and even be composed mainly of hydrogen and helium. But the earth is not so constituted, nor are the other planets. In other words, the earth has not the kind of composition it should have if it were derived from the sun, as the geologists believe. This difficulty might possibly be avoided by deciding that the sun has not this high hydrogen and helium content, but in that case both astronomic and geologic theory would be demoralized by the inability of the sun to produce heat for more than a brief period, as astronomers and geologists estimate time.

Recent calculations made on the assumption that the sun is very old and that it manufactures heat by the transformation of hydrogen into helium give the sun a hydrogen content of 51 per cent and a helium content of 42 per cent, with only seven per cent of the heavier elements. These rsults are only thought to be approximate, though not far from correct.[9] Going far back in time to the origin of the solar system, the hydrogen content would be somewhat greater than that named and the helium content somewhat less. However, the helium content would still be high.

The problem then would be to get the earth and other planets from a sun which had that composition, but with so little of both hydrogen and helium in the earth and other planets

[9] Russell, H. N., *Present State of the Theory of Stellar Evolution,* Scientific Monthly, Sept., 1942, p. 236.

the thing seems impossible. The earth, for example, is composed almost entirely of metallic and stony materials. There is almost no hydrogen on earth except in water, of which it comprises about one part in nine, and helium exists as a mere trace in both rocks and atmosphere. If the sun from which the earth was made contained much helium, say a fourth or a third, both earth and the other planets should contain great quantities of that element. The practical absence of helium from the planets discredits the hypothesis that the planets were made from the sun.[10] Or, the astronomers can go back to the conclusion (which the writer believes more sound) that there are comparatively small quantities of both helium and hydrogen in the sun. But if this is done, the theory that the sun and the earth are untold millions of years old will have to be discarded and geologic history rewritten on an entirely different basis from that believed and taught by geologists.

Origin of the Ocean and Atmosphere

Other serious difficulties exist in accounting for the composition of the earth by any evolutionary theory of the origin. For example, geologists have long been uncertain regarding the source of ocean[11] and atmosphere on the earth. When the problem of their origin is studied, it would seem impossible that the earth would have the ocean and atmosphere it has if the material composing it came from the sun.

The temperature of the sun is thousands of degrees higher than that of the earth. Material shot out from it into space would be fiery hot so that it would be dissipated through space and by the time the metallic and stony material assembled to form solid particles, little, if any, oxygen and hydrogen to form water would be present upon those particles; and when these solids gathered together to form the earth, it would be a hot, dry earth. The planet Pluto, far out in space, is about the size of the

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[10] This matter of the amount of helium in the sun and the rest of the solar system in relation to the possible age of the sun and of the solar system as a whole is of basic importance in considering the possible history of the earth, and a few details in connection with this problem should prove instructive.

Whipple (*Between the Planets*, p. 201) writes: "In interplanetary and interstellar space are atoms of hydrogen, sodium, calcium, titanium and probably other elements." Note that helium is conspicuous by its absence. If it were there in appreciable amount it doubtless would have been mentioned. Also physicists try to account for the mere trace of helium in the atmosphere of the earth by the escape of helium from the atmosphere. If it escaped from planets so readily, presumably it would be more abundant in space.

On its possible escape from the earth he writes, "For helium it is about the mass of the Earth. . . ." "The values apply for a surface temperature of 2,000 degrees F.—corresponding to liquid volcanic lava." He is dealing with the temperatures necessary for helium and other gases to escape into solar space from the earth and other planets. (p. 241.)

On the constitution of the major planets he writes: (p. 241) "The giant planets possess huge quantities of hydrogen and perhaps helium, while these elements are rare on the earth." Note that the presence of helium in appreciable quantities is asserted with the qualification of a *perhaps*. The "huge quantities" of hydrogen still leave it much less in amount than that of the heavier elements.

On page 243, *probably* has to be used in asserting the presence of much helium in the sun. This would not be necessary if observation showed great quantities of helium there. The statement goes, "The overwhelming abundance of hydrogen and probably helium on the sun . . ."

[11] Whitney, Dudley Joseph, *The Age of the Earth;* Bulletin of Deluge Geology, Vol. 1, 1941, pp. 120-132.

earth, but has neither atmosphere nor icy covering.[12] Evidently no material has separated out from it to form ocean or atmosphere. It is therefore difficult to see why the earth on forming should develop an ocean or atmosphere from within itself. It is also difficult to understand how it could attain it from solar space other than by the express wish and act of the Creator.

There seems also to be an insurmountable problem in getting an ocean of anything like the composition of the present ocean naturally, or except by the express wish and act of creation. This is particularly true when the sulphur and chlorine content of the ocean is considered. From the material available for making an earth it would seem that, naturally speaking, the ocean should contain very little chlorine but have an enormous amount of sulphur. In fact, by any purely naturalistic origin, the earth should be so rich in sulphur on its surface that life for common plants and animals would be impossible.

The earth has often been compared to a gigantic meteorite, the material of which has been sorted by heat. But meteorites normally contain great amounts of sulphur and comparatively little water or chlorine, though chlorine is often present in appreciable quantities. Since the average amount of sulphur in meteorites i estimated as being not far from 1.87 to 1.9 per cent,[13] on this basis about one part in 53 to 55 of the earth would be sulphur if the earth were made from material like that composing meteorites, and that sulphur would now be concentrated mainly on its surface.

Sulphur is easily vaporized by heat and the earth is very hot within and has generally been believed once to have been molten. If it were molten, the sulphur should be gathered mostly at the surface, but it is not. There is little in the surface rocks and comparatively little in the salts of the ocean.

Sulphur also is known to exist abundantly in the earth as metallic sulphides, that is, united directly with certain metals and other elements. A layer of the earth from 750 to 1800 miles down is believed to be composed in large part of sulphides.[14] These also exist in great quantity in parts of the earth's crust in certain ores, and volcanoes often emit great quantities of liquid sulphur and various sulphur compounds. As has been said, with so much sulphur as part of the earth, only *creation* seemingly could start an earth with so little sulphur at the surface.

Meanwhile the chlorine of the earth seems to be concentrated mainly in the ocean where it exists in several times as great amount as sulphur.

If the earth were originally molten, or if the material of the earth has in some way been sorted by heat, as appears to be the case, this is where most of the chlorine should be; only heat should have driven the sulphur to the surface too, and it is not there. Thus no naturalistic system for starting the earth will seemingly account for the condition of the surface of the earth, for the presence of ocean and atmosphere, and for the abundance of chlorine in the ocean and yet for the comparatively small quantity of sulphur compounds there.

If necessary we could continue this study of details connected with the composition and nature of the earth and show how inadequate are all naturalistic theories to account for

[12] Whipple, Fred L., *loc. cit.* p. 190

[13] Longwell, Knoph and Flint, *A Textbook of Geology*, Part 1 *Physical Geology*, 1932, p. 370.

[14] Watson, F. G., *Between the Planets*, 1941, p. 177.

them. An example is the way that volcanic eruptions are accompanied by the emission of enormous quantities of water vapor and other gases. How did that water vapor get within an earth whose internal temperature seems to be very high? Heat tends to turn water into a gas and make it spread out in space. While the material of the earth was assembling to make the globe, apparently the water would remain a vapor and part of the atmosphere. It would not be likely to enter the earth. Geologists simply do not know how to account for the origin of the ocean, or of the atmosphere, or the water within the earth. Their theories on the origin of the earth and the rest of the solar system fail when viewed in the larger aspects, as in the theories like the Nebular Hypothesis and the Encounter Theory. And they fail when viewed from the standpoint of special problems like that of the source of the water of volcanism. Studies of features such as these, however, deserve a place by themselves. Certainly until the scientists can present a reasonable and consistent naturalistic hypothesis for the origin of the earth, and a reasonable explanation for its nature at the start, which will make the kind of history they assert for it seem probable, they have no right to set forth a kind of history of the earth which they can ask the public to believe.

Fitness of Environment for Life

Closely related to the problem of the origin of the earth is the matter of the fitness of the earth for life. Only a most harmonious combination of chemical and physical conditions make it possible for the numerous life forms of the earth to exist and prosper. Plants, animals, and men may be said to live on a kind of a "knife edge" of environment, and if the earth were only a little warmer, or colder, or a little different in several other ways, life would either be impossible or could exist in only the most simple forms. Now, even if we agree on the possibility that a solar system with one or more planets of the approximate size of the earth might evolve into being, the chances that conditions on them would be suitable for life such as exists on this earth are almost infinitesimally small. On this basis the theory of divine creation of the earth is infinitely superior to the theory of evolution. This can be seen when the case is examined in some detail.

The matter of temperature is generally held to be of prime importance when a suitable environment for plants and animals is investigated. Water is very important in the make up of plants and animals. The temperature cannot be so low that the water will be a solid rather than a liquid, and in fact for most plant and animal life the temperature must be at least several degrees above freezing, for appreciable lengths of time at least. When warm blooded animals endure colder temperatures it is because internal processes supply them with heat.

On the other hand temperatures approaching the normal boiling point of water are such as to make most life processes impossible, though inactive spores of some organisms can endure fairly high temperatures. As far as man is concerned, he can endure a dry heat ten to twenty, or even more degrees above blood temperature, but a moist heat at blood temperature or a little greater is almost unendurable, if the condition continues for any length of time. This is true with many animals as well as man. There is thus a very narrow range of temperature at which life can prosper, and the chemical nature of the elements is such that it is inconceivable that at some other higher or lower belt of

temperature other substances could act like water, carbon compounds and the other substances which are so important in life processes. The temperature suitable for life on earth is the only temperature possible at which highly varied forms of living organisms could thrive. This narrow range of temperature is hard to find in the universe. The stars that we see are fiery hot, so that life could not exist upon them, and out from the stars in dark space the temperature approaches absolute zero, or far below the freezing point of water, and life could not function there.

A world that evolved into being, in order to be fully satisfactory for plants and animals, should rotate at about the same rate as the earth. More rapid rotation would give days and nights of short length, which might not be harmful, but slow rotation would give long days and nights. Long nights would tend to allow too much escape of heat into space and they would likely be too cold, while long days would tend to be too hot. The evolved world could not be too distant from its sun, for then the years would be long and the summers too hot, and the winters too cold. The distance of such a world from its sun would be goverened by the amount of heat and light received from that sun, and this brings us back again to the problem of temperature. If too far from the sun, the temperature would be too low, and if too close to the sun, it would be too high.

An absolute necessity for life is therefore some body which is not hot and glowing, but one which would be dark and cold unless it received both heat and light from some larger body like the sun, and this would have to be at the proper distance to supply enough heat and not too much, and enough light but not too much.

This other world, if it existed, could not be too large because then the force of gravity would be too great for most kinds of organisms to function well; they would weigh too much. On the other hand a much smaller globe could not contain sufficient atmosphere for successful plant and animal growth and for the control of temperature. The moon contains no atmosphere because it is too small to hold one, and Mars contains only a small atmosphere, too small altogether for plant life of any but the most simple kind, and even that probably does not exist.

The atmosphere of an other world could not be much less dense than that of the earth, otherwise the days would be too hot or the nights too cold. The atmospheric pressure on earth of 14.7 pounds per square inch at sea level seems about ideal for human welfare and for the proper control of temperature. While the human body might stand a higher pressure, the air, when moist, at such an higher temperature would contain far more moisture than at our sea level and make human life almost unendurable at anything like blood temperature, for air can contain far more moisture at a high pressure than at a lower one. That is why rain falls when moist air rises and expands.

On the other hand a materially reduced atmosphere would make living conditions difficult. Since a light atmosphere can take up far less moisture than now, the raifall would be less, though evaporation from the ground and from leaf surfaces would be greater, provided moisture was available to evaporate. Also a lighter atmosphere would blanket the ground less against the escape of heat and the days would be hotter and the nights colder. An earth which evolved into being ought to have an atmosphere of approximately the present size, and of course, composition.

The composition of the atmosphere in the nature of the case is extremely important. The two main gases of the atmosphere are oxygen and nitro-

gen. There are also some minor, inert gases, such as argon and neon, which we need not consider. Nitrogen in the atmosphere is almost chemically inert, but in combination with oxygen, hydrogen and carbon, it is one of the four most important elements in plant and animal nutrition. We hear much about protein these days and proteins are nutrients in which nitrogen is abundant. In the atmosphere there are about four parts of nitrogen to one of oxygen.

If the oxygen were very much less, animal life would have difficulty in functioning. It is needed to "burn" the carbon compounds of the blood and so produce heat and energy. If it were much greater in amount it would doubtless stimulate animal activities too much, and if it were in much less amount they could hardly function. Yet we have seen that the problem of the oxygen of the air is one of the most puzzling to geologists in their theorizing about the nature of the earth. They do not even know whether there was any free oxygen at the start in their theorizing about the origin of the earth. From a naturalistic standpoint the presence in the atmosphere of sufficient free oxygen—and particularly the right amount of oxygen and no great excess—is one of the most puzzling problems of geochemistry.

The carbon of the atmosphere is likewise all essential in the problem of life, for without carbon dioxide in the air there could be no plant growth and so no food for animals, yet the carbon dioxide content of the air is only 3/10,000 of one percent, a trivial amount it would seem. It amounts to only a small fraction of an ounce over each square inch of the earth's surface, yet this amount proves satisfactory for plant growth. More might provide satisfactory conditions for plant life, but much less would make plant and animal life almost impossible. The amount and composition of the atmosphere is amazingly suite for both plants and animals: but delicately balanced.

In the ocean one of the marvels is the abundance, but not the excess, of sodium chloride, common table salt, and the comparatively small amount of sulphates (compounds of sulphur and oxygen with other elements). This is somewhat paradoxical because sulphates are known to be added to the ocean in far greater excess than chlorides and, naturally speaking, this should apply to the past. Nevertheless, for satisfactory marine life the present balance between sulphates and chlorides is what is best. That this could occur naturally, rather than by divine ordering, seems unbelievable.

In the rocks there are many elements which exist in soils in extremely small amounts, and in certain cases in insufficient amounts and yet they are necessary for plant and animal life, or for certain kinds of living forms at least. In some instances, as with arsenic, an excess would be very injurious, but without traces of it certain plants and animals could not prosper. Boron, from which comes borax, is another necessary element, though more than a very little of this element would be very harmful.

Of selenium, which may not be necessary for most plants, it can be said that there are certain areas in which there is so much of the element that plants growing there are poisonous to stock. Fortunately such areas are rare, but this shows how easily an earth might evolve, if solar systems did evolve, in which life, at least of everything but the most simple kinds, could not exist.

The thing is particularly noteworthy when we consider the nature of meteorites, which presumably are typical of the stuff of which worlds are made. These, it has been pointed out, normally contain on an average from 1.87 to 1.9 percent sulphur,

and this sulphur naturally would tend to accumulate at the surface of the planet as it took form. Theoretically it would cover such a planet deeper than the ocean covers the earth, but if it did life would be impossible.

Whether we consider the size of the earth, or its surface temperature, or the size and nature of the atmosphere, or the composition of the ocean and of the land, everything proclaims such an amazing and delicately balanced fitness of the environment as seemingly to demand the work of the Creator.

"O Lord, how manifold are thy works! In wisdom hast thou made them all."[15]

Summary and Conclusion

A system of geologic history has been proposed by scientists at large which has been generally accepted by scholars as fact for more than a century on two false assumptions. (1) That they knew how it started. And (2) the conditions which they assumed at the start they believed, erroneously, would account for "the grander phenomena of earth's history."

Yet in one important detail after another the advance of knowledge has been in conflict with their early conclusions and made unreasonable a belief in the kind of history which they have assumed for the earth. Long after the Nebular Hypothesis should have been rejected it was still taught as fact. When finally it was weighed in the balances and found wanting, a substitute was put forth in its place which was also found to be altogether unsatisfactory. The nature of the earth itself is in conflict with this kind of history. The next logical step should be to cast aside these beliefs and teachings regarding the history of the earth and with an open mind to examine anew the problem.

By logical deduction, which should characterize all genuine scientific thought, the failure of evolution, or purely naturalistic processes in accounting for the origin of the earth and the rest of the solar system, should suggest the possibility of a special *creation* for its origin, and a history after creation very different from that which has been believed and taught for more than a century.

[15] Psalm 104:24.

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DID Man COME FROM THE SEA?

by R. E. HOEN

Or Is He a Product of Divine Creation?

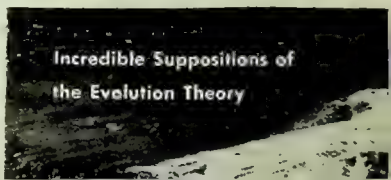
Reply to "Life's" Article, "Creatures of the Sea"

IN A recent issue of *Life* magazine there appeared magnificent pictorial and verbal representations of very real creatures which inhabit the waters of the sea. But interspersed with the interesting and informative descriptions of these creatures were frequent intrusions of theories concerning how they came into existence and how they acquired their unique characteristics. The sea was portrayed as the birthplace of all living things, and it was suggested that later plants and animals "climbed from the sea onto the dry land."

In an earlier essay in *Life* magazine[1] chance mutation and natural selection were given chief credit for the divergences by which all the various kinds of animals supposedly evolved. But the "creatures of the sea" described in this later article apparently disdained such unguided accidental methods. Repeatedly it was asserted that they *learned* new techniques and rather purposefully evolved and developed new paraphernalia for survival. For example, "on tidal marshland . . . seaweeds learned to anchor themselves and survive in air when the waters ebbed;" the amphibian *Eryops* "learned to live most of its life on dry land;" a few of the amphibians "learned a new way of life; they had dispensed with the transitional tadpole or larval stage . . . and had begun to lay their eggs on dry land: they had become reptiles;"[1] "the fishes . . . learned to swim through the necessity of escaping enemies and maintaining their position and balance in swift running streams"[2]

In the course of all this "learning" process, marine creatures were said to have "developed" or "improved" their means of protection and defense, of nutrition, of locomotion and of reproduction. It was claimed even that "the eye originated in water."

A creature about to be devoured by an enemy finds it quite too late to invent and develop a protective device with which it was not equipped previously. And it is then also far too late for it to transmit to its progeny an inherited



determiner for such a protective mechanism. Any plant or animal form not provided already with adequate means for perpetuation of its species, or not suited otherwise to its environment, is doomed to perish before it could possibly improve its physical condition or its relation to other creatures. In fact, no creature would ever have come into existence under such unfavorable conditions.

The famous yucca moth case illustrates this point.[3] The yucca is a coarse, grasslike plant which grows in the semi-arid areas of Mexico and southwestern United States. Large cream-colored blossoms adorn the massive central stem of the plant. The pollen, which is essential to the fertilization of the ovules to produce seed, is so sticky that it cannot be carried by gravity or by the wind. A certain kind of moth, *Pronuba yuccasella,* uniquely inserts her eggs into the ovary—which is to become the seed pod—of this flower. But before leaving the flower, the moth instinctively gathers a mass of pollen from the anthers, carries it to the top of the pistil, and thrusts it therein. Thus fertilization of the seeds is ensured, and provision is made for food for the young larva of the moth as it hatches. Without this latter action of the moth, no seeds would be available for propagation of the plant itself. Without the yucca plant, the moth larva would be without food.

One may ask of the evolutionistic philosopher, "How was the yucca propagated before there were any such moths, or while *learning* to depend upon them for fertilization of its flowers?" Conversely, "How did the moth species survive before the yucca was available or while discovering such a favorable and co-operative source of food?" Further, "How did the moth *learn* thus to provide for the nourishment of progeny which she never will see?"

To one who accepts fully the creation record, the answer to these questions is prompt and satisfying. Both plants and insects were created during the same first week of time for this earth. Both were fully equipped by the Creator with their several habits and instincts from the very first. They did not need to pass a miserable, helpless existence until chance evolution or purposeful discovery provided adequate means of survival.

The special functions, abilities, and organs possessed by any particular kind of creature are not the result of afterthought or of wishful thinking. In the formation of living things the Creator was not taken unawares. He provided for possible emergencies of His creatures *in advance* and at the outset. There is no emergency with God. Preparedness, and that far ahead of the need, is His plan of operation.

Take, for instance, the blood of vertebrates, and of man in particular. Consider an imaginary early man unfurnished with the blood-clotting substance, thrombogen. He goes forth to till the soil or to engage in some other activity, and accidentally wounds himself, severing an artery. He notes the profuse flow of blood, and says to himself: "This will never do; I'll die if this continues. I must quickly discover and develop a substance that will stop this bleeding. What is more, I must at once arrange to transmit such a characteristic to my children, or our whole race will be liable to perish." But the hapless man bleeds to death before his "learning" has resulted in "evolution" or "development" of a suitable protective mechanism. It is too late to save himself or to transmit the necessary blood-clotting quality to his descendants.

The instincts of animals are inherited; they are not acquired by education or by experience. They are *unlearned* patterns of behavior. An incubator chick when mature will behave and make a nest as did the mother hen. Wild fowl need not see the nests in which they were hatched to enable them to build others of corresponding pattern. Migratory birds will wend their way over trackless areas to the same feeding and

breeding grounds as the rest of their clan have done for centuries. Marvelously, salmon hatched in remote mountain-fed streams will migrate to a sea they have never known, and upon maturity will return to spawn in the streams of their babyhood.

Evolutionists marvel at such instincts, and confess that they cannot explain them. For example: "Each autumn, in response to some deep and mysterious urge, adult [European] eels leave the fresh waters where they dwell and come down to the sea. Then, guided no one knows how, they find their way across almost 3,000 miles of the open Atlantic to their spawning grounds in the depths of the weed-strewn Sargasso Sea."[2] There the eggs hatch, and three years later the young enter the same European streams whence their parents came.

But the creationist understands the source of such mysterious behavior. These instinctual tendencies are God-given. They are a part of the equipment with which the nervous systems of the various creatures were provided initially just as are physical organs such as eyes, fins, or feathers.

Who can say that the feather of a bird is less marvelous than the instincts of the brain of that bird? I have before me a feather from the wing of a guinea fowl. The light and dark portions of each minute branching portion of that feather are so uniquely adjusted to each other that the composite effect is a pattern of rows of *spots*. It is not the random arrangement of chance, and indeed can be due to no learning or forethought on the part of the fowl.

So it is in the entire realm of the biological world. Sense of need of a physical feature or of a particular habit, even were consciousness present in every creature, is a far cry from provision to supply that need. But the omniscient Creator supplied each and every living thing with protective, restorative, and healing provisions when He made the creatures themselves. They all were "very good" and perfect when created. Reproduction of plants by seeds, cuttings, and sprouts; reproduction of animals by sexual and by asexual methods; repair of wounds and injuries, even regeneration of lost parts by some species; instincts and migration habits; and all of the marvelous arrangements for supply and utilization of food; each was a part of the great forethought and intelligent plan of the Creator.

One theory concerning the ocean has been a favorite with evolutionists ever since it was suggested by Bunge and by Macallum.[5] A recent medical work summarizes the idea in these words: "Sea water is becoming progressively more salt as more solids are being carried into it. It is thought that about the time when man's progenitor became differentiated as a group of cells organized in a fluid medium, the ocean water was about as salt as body fluids are now. This has been taken as evidence that man's progenitor originated in the ocean."[6]

Such a statement is a superb example of the type of reasoning employed very frequently by evolutionists. *Because* man's body fluids have a lower salinity than sea water, it is postulated that the vascular systems of ancestral animals engulfed sea water during their formation and closure, and that they have retained the same saltiness ever after. Then that surmise is "taken as *evidence* that man's progenitor originated in the ocean."

A distinguished author of a textbook on biochemistry[7] has presented the same theory. He has included data from Macallum[8] showing the composition of the body fluids of various marine and terrestrial animals and of man as compared with that of sea water. In these data one finds little agreement between the proportions of dissolved salts even for various creatures which now inhabit the sea. The fluids of the dogfish which lives in sea water do not correspond at all with the medium with which it is surrounded. The proportion of magnesium in the serum of the horseshoe crab is nearly the same as that of sea water,

but the lobster, a creature not very remote from the horseshoe crab according to evolutionists, possesses only about one seventh as much magnesium. Even the jellyfish, which has but little tissue separating its internal system from the surrounding water, differs significantly in potassium content from the composition of the water in which it is found.

In several essays in *Life* magazine, Lincoln Barnett has referred to the same developmental theory. He said: "It is, moreover, a fact of deep evolutionary significance that the chemical composition of man's blood is similar to that of sea water—in it swim all the elements of the sea though dispensed in different proportions. One reason is that we came originally, all of us, from the sea."[9] Then again: "Deep within all creatures on earth there persist certain physiological and instinctual bonds attaching them to the waters from which life initially arose. None can exist without water; the elements of the sea linger in their very cells."[1]

In a more recent article the same idea appears again in part: "Since the sea is the ancestral home of all living things, the creatures that inhabit it embody an animate panorama of evolution from the dawn of existence."[2] Here *Life's* essayist adopts the premise that the ancestors of all animal forms were in the sea, and *therefore* one finds now living in the sea samples of practically all major animal groups.

There is an important psychological element in these repetitious efforts by evolutionistic writers who claim that life originated in the sea. One may read and mentally repeat almost anything until it becomes a part of his consciousness and of his very belief. An idea brought to one's mind with sufficient frequency takes on for him the aspects of fact, whether or not it is rational, and whether or not there is demonstrable evidence for it. Of course if the idea is suggested by a person of some note, it is considered the more credible. Such has been the naïve technique by which evolutionism thrives and creationism is ignored or neglected.

The whole theory of the origin of all life from the sea has no basis for its conclusions. With equal validity it could be said that no creatures can live without air; the elements of air linger in their very cells; therefore animal life had its inception in the air. Again it could be established that the elements of the soil are found in all animal cells, consequently animal life arose from the dry land. And so far as the salts of the sea are concerned, a considerable part of the assortment of them found in the water has been dissolved out of the land. Hence the same materials will be found in the sea as in the soil.

The Bible record states clearly that "out of the ground the Lord God formed every beast of the field, and every fowl of the air."[10] Since the Creator fabricated every creature from the earthy materials which He Himself brought into existence initially, it is to be expected that the elements common to earth and sea shall be found in the tissues of every form of plant and animal life.

Another important aspect of this question is that every creature is nourished by the soluble materials in which at least a part of its tissues are bathed. One of the remarkable features of living cells is their ability to absorb *selectively* only those suitable to their several needs. Likewise, the amounts absorbed are proportional to the requirements of each tissue. While both sodium and potassium salts are present in human blood, the red cells or corpuscles contain far more potassium than does the fluid portion, the serum, and the serum contrariwise has a higher concentration of sodium salts. Such power of choice, of selectivity, is one of the most significant characteristics of living things. The simplest creatures of the sea unconsciously absorb or reject any particular substance, as suits their needs. Man, the highest being of God's creation on earth, possesses the power of choice to the highest degree. As a free moral agent he is enabled to choose in the spir-

itual and the mental as well as in the physical realm. Selective ability is another of the God-given characteristics of living things and is not acquired spontaneously or purposefully by any creature.

A modern apostle of evolution, Julian Huxley, recently published a book in which are set forth three aspects of the "over-all process of evolution" as he sees it. He calls these three phases (1) the inorganic or cosmological phase; (2) the organic or biological; and (3) the human or psycho-social. He continues: "Nowhere in all its extent [in phase 1] is there any trace of purpose. . . . It is impelled from behind by blind physical forces, a gigantic and chaotic jazz dance of particles and radiations." "Evolution in the biological phase is still impelled from behind; but the process is now structured so as to be directed forwards." "Evolution in [the psycho-social] sector is pulled on consciously from in front as well as being impelled from behind." "In the light of evolutionary biology, man can now see himself as the sole agent of further evolutionary advance on this planet. . . . He finds himself in the unexpected position of business manager for the cosmic process of evolution."[11]

To an ever-increasing extent, evolutionistic writers are voicing the sentiments advanced by Huxley. It is assumed that the simple animals of the sea recognized their shortcomings and needs, that they therefore "learned" improved techniques of living, and evolved the organs and abilities necessary to capitalize on this learning. Though some of these creatures continued their existence in the sea as "living fossils,"[2] others more progressive than their fellows "learned" to live on the land. The nervous system and the mind in particular is made the creator of the physiological characteristics of the animal world, even the agent for its own improvement. Supposedly it has been able to elevate itself by its figurative "bootstraps" till it is the supreme factor in evolution. Thus man, whose mind surpasses in proportionate bulk and versatility that of less accomplished creatures, presumes to displace any higher authority or power than that which he himself possesses, and to disown his Creator.

"The fool hath said in his heart, There is no God."[12] But the uniqueness of the plan of the entire natural world, its exquisite design, its ingenious adaptations, and the marvelous manner in which the functions and instincts of various creatures serve their several needs, all point to a Master Architect and Builder of the biological world.

Just as a piano, a radio, or an automobile cannot construct itself, but is a product of intelligent planning and skillful execution, so the world with its creatures of sea and land cannot be the result of chance, accident, or self-creation. Only a Being of infinite wisdom and power could fabricate a biological realm of such varied and intricately articulated structure.

"But ask now the beasts, and they shall teach thee; and the birds of the heavens, and they shall tell thee; . . . and the fishes of the sea shall declare unto Thee. Who knoweth not *by all these* that the hand of the Lord hath wrought this?"[13]

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[1] "The Pageant of Life," "Life," Sept. 7, 1953. Copyright, Time Inc.
[2] "Creatures of the Sea," "Life," Nov. 30, 1953. Copyright, Time Inc.
[3] See "The Encyclopedia Britannica," 11th ed., vol. 16, pp. 683, 684, art. "Liliaceae;" or any comprehensive biology text.
[4] Genesis 1:31.
[5] A. B. Macallum, "The Paleochemistry of Body Fluids and Tissues," "Physiological Review," vol. 6, p. 316 (1926).
[6] Julius Jensen, "Modern Concepts of Medicine," p. 93. C. V. Mosby Co., 1953.
[7] Meyer Bodansky, "Introduction to Physiological Chemistry," 4th ed., pp. 5, 6. John Wiley and Sons, New York, 1938.
[8] Macallum, "Trans. Coll. Phys. of Philadelphia," vol. 39, p. 289 (1917); cited by Bodansky, page 5.
[9] "Miracle of the Sea," "Life," Feb. 9, 1953. Copyright, Time Inc.
[10] Genesis 2:19.
[11] Julian Sorell Huxley, "Evolution in Action," pages 14-17, 132. Chatto and Windus, London, 1953.
[12] Psalms 14:1; 53:1.
[13] Job 12:7-9, Oxford S. S. teachers' edition, margin; see also American Revised Version, margin.

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